b.) Remarks

Claims 7-15 have been amended in order to recite the present invention with the specificity required by statute. Accordingly, no new matter has been added.

The Examiner has objected to claims 7 and 9-14 for the formal reasons noted at pages 2-3 of the Office Action. In response, these claims have above been amended generally in conformity with the Examiner's kind suggestions.

Claims 1-3, 5-9 and 11-15[1] are rejected under 35 U.S.C. §103(a) by Bott (*J. Biotechnol.* (2003) 129-53) in view of Molenaar (*J. Bactorl.* (2000) 6884-91), Hollander et al. (*Appl Microbiol Biotechnol*, Vol. 42 (1994) 508-15) and Nakagawa (U.S. Publication No. 2002/0197605). The Examiner's bases of rejection are set forth at pages 4-9 of the Office Action.

Bott is cited as showing production of amino acids by *Corynebacterium glutamicum* and that NADH dehydrogenase is involved in such production. Molenaar teaches the NADH dehydrogenase and gene of SEQ ID NOS:4 and 3.

At page 5 of the Office Action, the Examiner states

> Hollander et al teach that quantitative yield of lysine can be produced from glucose in a fermentation system comprising *Corynebacterium*, if NADH and NADPH are consumed (its concentration is decreased) (last paragraph, page 514). Therefore, since type-II membrane bound NADH dehydrogenase of Corynebacterium glutamicum converts NADH to NAD, by doing so it depletes the NADH and increase the production of lysine from glucose.

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[1] Initially, Applicants note that claim 10 is not rejected over any prior art. Accordingly, if claim 10 is subject to any rejection in the next Office Action, such Office Action should not be made final. MPEP §706.07(a).

That is, according to the Examiner, *Corynebacterium glutamicum* uses type-II NADH dehydrogenase in amino acid biosynthesis. Moreover, ndh gene-disrupted *E. coli* contains NADH-I for the production of amino acid. Therefore, the Examiner contends would have been obvious to introduce Molenaar's *Corynebacterium glutamicum* NADH dehydrogenase gene to a microorganism to enhance the production of amino acids.

To clarify the record, however, Applicants wish to point out that ndh gene encodes Type-II NADH dehydrogenase. Nakai shows NDH-II is a respiratory chain enzyme of very low energy efficiency. Therefore, Nakai prepared *E. coli* mutant strains in which the ndh gene is deleted, so as to obtain better energy efficiency. Nakai reported doing so resulted in improved L-amino acid productivity.

Accordingly, though Type-II NADH dehydrogenase is the only membrane bound NADH dehydrogenase in *Corynebacterium glutamicum*,[2] one of ordinary skill in the art would have no reason to select low energy efficiency Type-II NADH dehydrogenase to increase amino acid production because *C. glutamicum* contains many enzymes (other than Type-II NADH dehydrogenase) which consume NADH and NADPH. For instance, one such enzyme is maltose dehydrogenase. (See Molenaar, cited by the Examiner).

In view of the above amendments and remarks, Applicants submit that all of the Examiner's concerns are now overcome and the claims are now in allowable condition. Accordingly, reconsideration and allowance of this application is earnestly solicited.

Claims 1-3 and 5-15 remain presented for continued prosecution.

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[2] Which, of course, it is not.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

/Lawrence S. Perry/
Lawrence S. Perry
Attorney for Applicants
Registration. No. 31,865

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200

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